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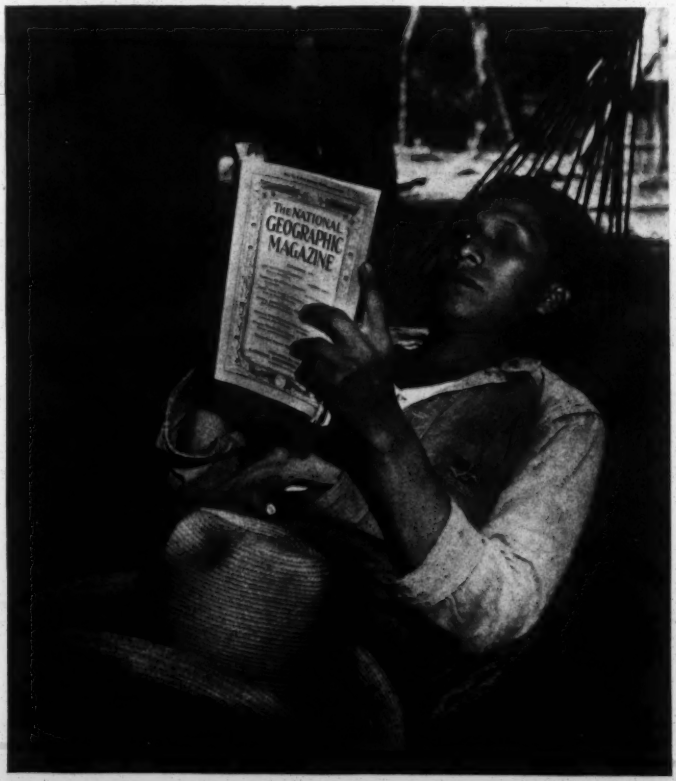

RICHARD H. STEWART

KNOWING ONLY SPANISH, THIS MEXICAN FARMER ENJOYS "JUST LOOKING AT THE PICTURES"

The NATIONAL GEOGRAPHIC MAGAZINE furnishes him an abundance of information in the universal language of photography—just as it does for English-speaking children before they learn to read. This man's land lies in southernmost Veracruz, one of the 27 states of Mexico (Bulletin No. 3).

Bulletin No. 1, January 30, 1950

Jammu and Kashmir People Await Plebiscite

"GETTING out the vote" on the northern roof of the Indian subcontinent poses a bigger problem than it seemed when the United Nations 10 months ago appointed American Admiral Chester W. Nimitz to administer a plebiscite there.

The plebiscite will determine whether the Himalayan twin state, Jammu and Kashmir, joins Hindu India or Moslem Pakistan. But the actual vote-taking has been delayed by unsettled conditions resulting from the fact that both India and Pakistan desire to annex the territory. Also, nature will raise plenty of obstacles to a quick and painless poll-taking when man-made troubles are ironed out.

Vale of Kashmir Only One-twentieth of State

Recording the vote of the 1,500,000 inhabitants of the beauty-renowned Vale of Kashmir where the Shalimar Gardens lie will be the easy part of the big undertaking. Setting up a workable balloting method for the 2,500,000 hill people in the rest of the state runs head on into physical difficulties which experts feel will hinder the plebiscite.

Bright little heart of a great rugged body, the Vale of Kashmir occupies less than one-twentieth of the state area, lying within the southwest part. The vale is half as large as New Jersey. It lies in the same north latitude as Los Angeles, but at the mile-high altitude of Denver. The Jammu-Kashmir unit is Minnesota-size.

The Jhelum River sweeps northwestward through the vale and past Srinagar, city of 200,000 and capital of the state. The Shalimar Gardens border lovely Dal Lake on the outskirts of Srinagar. Other jewel-like lakes dot the vale, around which mountains rise in tiers of lofty grandeur on every side. Many a Western visitor has declared the scene's beauty unsurpassed.

Town of Jammu Has Only Railroad

Moslem Pakistan territory borders Jammu and Kashmir on the west. India touches it on the south, Tibet on the east, and Afghanistan on the north. The Zaskar, Ladakh, and Karakoram ranges of the Himalayas, with the Indus River running between, stretch from southeast to the lofty Gilgit area in the state's northwest.

Trails through high mountain valleys cross from China and Tibet. Pakistan, however, provides the only easy access into the populous heart of Jammu and Kashmir. The state boasts just 20 miles of railroad, a line that crosses the southern border from Sialkot, Pakistan, and runs to the town of Jammu.

Somehow, the plebiscite must reach mountain dwellers both remote and illiterate, including many who are nomadic in the search for grazing land for their herds of sheep and goats. The finest of the soft pashmina wool, from which Kashmir shawls and scarves long have been hand-

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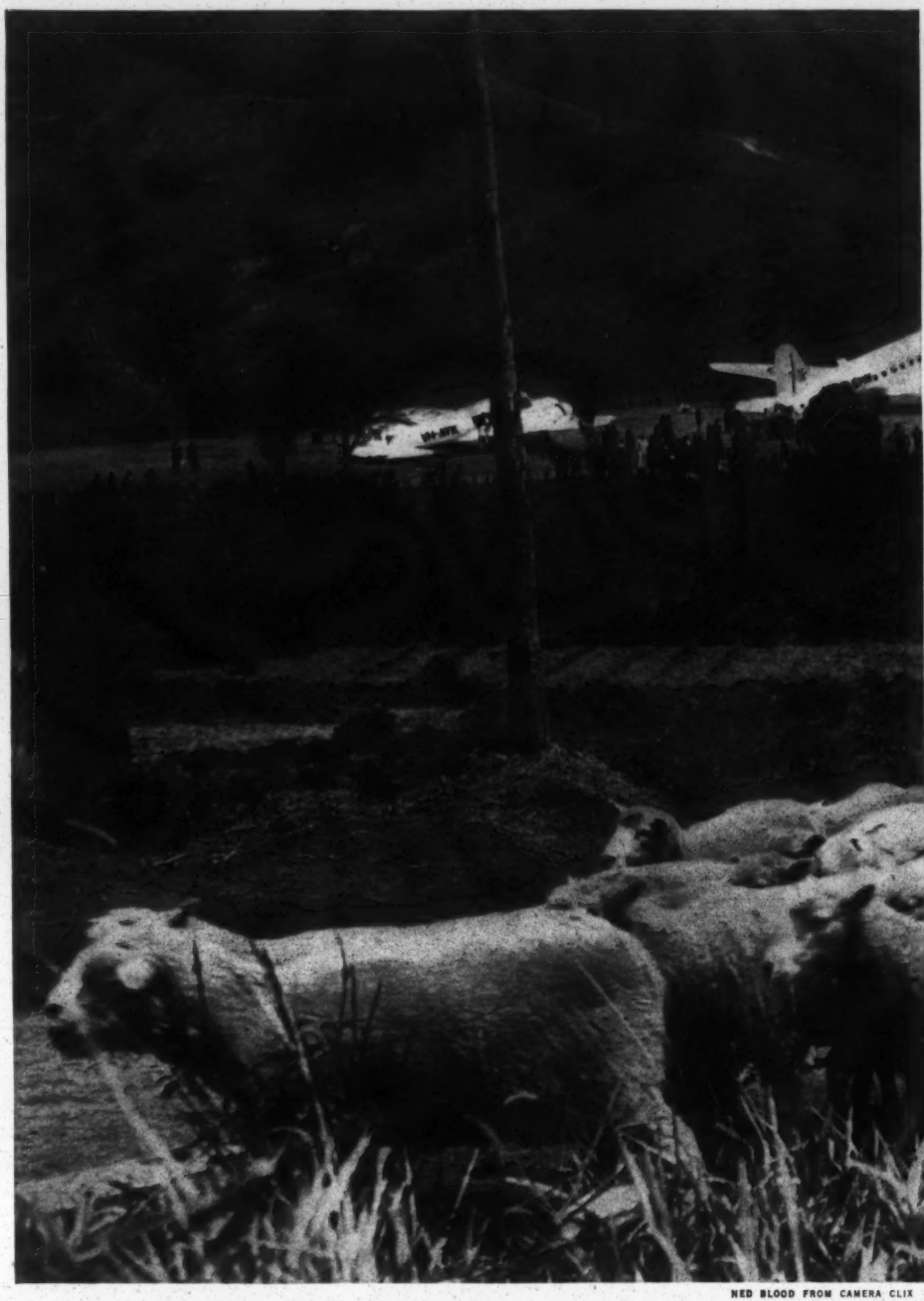

NED BLOOD FROM CAMERA CLIX

AFTER A FLIGHT FROM AUSTRALIA, AIR-WISE SHEEP HEAD FOR THEIR NEW HOME ON NEW GUINEA

The transports landed on Kerowagi airstrip in the remote Wahgi Valley among Stone Age gardeners who never before had seen sheep. The woolly cargo was sent as an experiment, to provide the tribesmen with a livestock culture and improve their living standards (Bulletin No. 2).

Bulletin No. 2, January 30, 1950

Sheep Airlift in Bird-of-Paradise Land

IN A high inland New Guinea valley where birds of paradise practice strange courtship dances and flaunt birddom's most unusual plumage, a new creature has taken to the air—the sheep. The December, 1949, issue of the *National Geographic Magazine* tells the story of a sheep airlift from Australia designed to raise the standard of living of the valley's primitive Papuan tribesmen.

Not to overlook the area's flamboyant birds of paradise, once greatly reduced in numbers because of world trade in their feathers, the *National Geographic Magazine* for February, 1950, contains 16 color paintings of paradise birds by Walter A. Weber, the Society's staff artist. This issue also features "Strange Courtship of Birds of Paradise," a revealing account by ornithologist Dillon Ripley of his experiences in the bird's only natural habitat—New Guinea and neighboring islands north of Australia.

A New Guinea Lost World

The story, "Sheep Airlift in New Guinea," is told in pictures supplied by Ned Blood, Australian supervisor of the Nondugl Sheep Station in the Wahgi River Valley of east central New Guinea. Industrialist E. J. L. Hallstrom (illustration, next page), whose hobby is presiding over Sydney's Zoological Park, is backing the experiment, partly in the hope of establishing a breeding station for the lofty valley's strange creatures —including birds of paradise.

Blood first got acquainted with the area during World War II when, under Japanese pressure, he led a retreating band of Australian scouts into mile-high Wahgi Valley. It was like a lost little world, hemmed in by summits higher than 15,000 feet, for few white men had penetrated its confines since Australians discovered it in 1933.

During his wartime visit, Blood contemplated the unproductive grasslands where no livestock grazed. He learned that, although days were hot in this vale only six degrees south of the Equator, nights at the high level were often cold. Sheep would provide the Stone Age people with wool for blankets and animal protein to bolster vegetarian diets, he reasoned.

When peace returned, Blood persuaded his countryman, Hallstrom, to finance a sheep experiment for the remote valley. Hallstrom set up a fund of $60,000—enough to buy and deliver 1,000 sheep of the sturdy English Romney Marsh strain by air transport from Australia.

New Shepherds Take over

To Kerowagi, where an American Lutheran mission maintains a close-cropped airfield, came 60 sheep in the first airlift load (illustration, inside cover). Natives, knowing only dogs, pigs, hens, and cassowaries, had been eagerly awaiting the strange cargo for weeks. At the sight of sheep, they burst into cheers.

The woolly creatures, tenderly herded by brand-new shepherds, reached Nondugl village, 10 valley miles from Kerowagi. There the Hallstrom Trust had prepared 500 grassland acres, erecting fences and sheds.

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loomed, comes from the under fleece of the belly of goats raised in the cold, snowy Ladakh, sometimes known as "Little Tibet."

In the populous valleys of the state's southwest, fruit orchards thrive and silk culture is important. Rug weaving and wood carving (illustration, below) continue at Srinagar and other towns in much the manner they have for centuries. On a relatively modern scale, however, is the silk factory on the capital's outskirts which helped to make silk for parachutes, Kashmir's chief contribution to the Allied cause in World War II.

Moslems, far outnumbering Hindus, constitute more than three-fourths of the population of Jammu and Kashmir. The maharaja, however, is a Hindu, hence the dispute on the issue of which dominion to join.

NOTE: Jammu and Kashmir appear on the National Geographic Society's map of India and Burma. Write the Society's headquarters, Washington 6, D. C., for a price list of maps.

For additional information, see "The Idyllic Vale of Kashmir," in the *National Geographic Magazine* for April, 1948; "Delhi, Capital of a New Dominion," November, 1947*; "India Mosaic," April, 1946; "India—Yesterday, Today, and Tomorrow," October, 1943*; "First Over the Roof of the World by Motor," March, 1932; and "House-Boat Days in the Vale of Kashmir," October, 1929. *(Issues marked with an asterisk are included in a special list of Magazines available to teachers in packets of ten for $1.00.)*

See also, in the GEOGRAPHIC SCHOOL BULLETINS, December 13, 1948, "Glacier-Framed Kashmir Is Pawn in Struggle."

VOLKMAR WENTZEL

APPRENTICE LEARNS FROM MASTER IN SRINAGAR'S WOOD-CARVING BAZAAR

These Kashmiri artisans chip and hew intricate designs from hardwood without the aid of power tools. Behind the boy stands a delicate screen of their handiwork. The man puts the finishing touches on a wall or door panel. Scattered about are finished boxes, beautifully carved.

Bulletin No. 3, January 30, 1950

Mexico's Fiestas Combine Religion, Gaiety

THROUGH long hours of toil in cornfield or shop, the Mexican worker is sustained by thoughts of tomorrow's fiesta. For tomorrow is sure to bring one; the Indian-Spanish make-up of modern Mexico demands it. José's need for gaiety, love of pageantry and play-acting, and deep religious feeling are all indulged in the typical below-border fiesta.

The combination nature of Mexico's festivals is seen in the annual blessing of the candles at San Juan Teotihuacán, which takes place this week. Joined with the somber religious services in this town near Mexico City are gay dances in native costume. On February 2, Candlemas Day, pilgrims from far and near gather for the fair at San Juan de los Lagos in the State of Jalisco. This is groundhog day in the United States.

Radishes Dressed as People

Soon Tzintzuntzan, in the State of Michoacan, takes the spotlight with its fiesta. Travelers viewing the costumed dancing will be equally captivated by the fishermen of near-by Lake (Lago de) Pátzcuaro who use nets shaped like butterflies to catch fish. Late in the month Taxco (Taxco de Alarcón), south of Mexico City, holds its fiesta.

José and Lolita ordinarily do not know the meaning of the play-acting which fills so important a place in their fairs. Usually the "why" has been lost in centuries of repetition. In Oaxaca, for instance, the people grow large and misshapen radishes and dress them like human beings. After the feast, which is a part of every fiesta, the Oaxacans dash their plates to bits on the street—no one knows why.

In Metepec, an hour from Mexico City, the parade which accompanies fiesta time is not made up of costumed people, but of oxen and burros, freshly washed and bizarrely dressed. Veracruz State's Papantla features men dressed like birds who climb a high pole and "fly" off on ropes.

Origins of other mummery can be traced. At Huejotzingo, near Puebla, Indians re-enact the war against the French under Maximilian. For a day, poor Mexican farmers become haughty French soldiers—though their uniforms are dirty and ragged. In like fashion, other fiestas relive the Spanish conquest, with lucky mummers dressed as Cortés and Alvarado.

Funerals Are Gay

Even the war between Spain and the Moors is remembered. Mexicans, to whom this Old World conflict means nothing, solemnly dress as Moors and dance in "battle" against Spaniards.

When saints' days and other annual occasions do not come often enough, Mexicans seize on marriages and funerals as excuses for fiestas. Funerals are gay events, the idea being that the deceased is relieved from the drudgery of earthly work. Funerals for children are especially joyous, for the young ones are sent to heaven pure of the stains of the world. The songs sung, however, are sad.

Mexican babies and children die at a high rate; so death is a real and close thing. On the Day of the Dead—November 2—death is celebrated by the entire country. Children buy and eat candy skulls. Bones

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The experiment at Nondugl is aimed at teaching native men to be good shepherds and women to be weavers. As they prove their capability, they receive sheep as gifts. Villagers along the valley are expected to take an interest, on the universal theory that they will wish to "keep up with the Joneses." Cattle may be brought in later by the trust.

Before the Wahgi Valley's pastoral age arrived, its people were gardeners, growing yams, tomatoes, cabbages, and beans. Their gardening continues, but they are learning the advantages of rotating their crops and carefully selecting their seeds. Tea and coffee may soon be introduced as possible money crops.

NOTE: New Guinea is shown on the Society's map of Southeast Asia and Pacific Islands.

For further information, see "Strange Courtship of Birds of Paradise," in the *National Geographic Magazine* for February, 1950; "Sheep Airlift in New Guinea," December, 1949; "New Guinea's Mountain and Swampland Dwellers," December, 1945; "Treasure Islands of Australasia," June, 1942*; and "Unknown New Guinea," March, 1941.

NED BLOOD FROM CAMERA CLIX

IN SHELLS AND BIRD-OF-PARADISE FEATHERS, WAHGI VALLEY CHIEFS WELCOME THE FIRST SHEEP

Receiving thanks is E. J. L. Hallstrom, Australian industrialist and naturalist who endowed the sheep airlift in the hope that a zoological garden might be set up in this remote New Guinea valley for the breeding of its 16 species of the bird of paradise. Spiny echidnas and tree-climbing kangaroos are other rare inhabitants of the Wahgi Valley.

Bulletin No. 4, January 30, 1950

Man-Made Ice Improves World's Menus

NATURE has made ice for aeons, but she has not always produced it when and where man wanted it. To meet this inconvenience, man went into the ice business himself a century ago. The centennial was noted by commercial icemakers who held a convention in New York just as the season's first thin ice ringed Central Park Lake.

Because man has made ice in ever-increasing amounts since the 1840's, the diet of much of the world's population has vastly improved. A century ago fresh meats and dairy products could go to markets but a few hours' journey away from ranch or farm. Seafoods were strictly for dwellers on the seaboard.

Homes Use About One-third of Manufactured Ice

Mechanical home refrigerators, unknown 30 years ago, today provide some 26,000,000 American households with miniature ice plants. In spite of the enormous ice-making capacity of these home units, commercial plants today are producing and selling almost twice as much ice as they did three decades back.

Barely one-third of today's "ice-man ice" is used in homes. Another scant third supplies restaurants, stores, hotels, and hospitals. Most of the remainder cools food in transit in refrigerator cars, trucks, and ships. Total production is more than 50,000,000 tons.

Salinas, California, for example, uses 4,200 tons of ice daily in the fruit- and vegetable-shipping seasons for cooling produce in transit. Texas and Florida packers blow shaved ice through big hose on to vegetable baskets which then need no re-icing en route to such distant points as Boston and Seattle. Sea harvests from shrimp to salmon are sandwiched in ship holds with generous layers of crushed ice.

In prehistoric times, the cave man stored surplus perishable food briefly in cavern crevices away from the heat of the sun. The farmer developed the springhouse to add precious hours to his fresh milk and butter. Later, he cut winter pond ice for his own use. He stored it, packed in cellars or sawdust, and some of it he sold to townsfolk.

Marylander Patented First Icebox

In George Washington's time, ice to cool summer foods and drinks was a luxury for the wealthy few in America as it was in Europe. It was laboriously hacked out by hand in late winter and stored in inefficient underground icehouses.

The first household icebox patent was issued to Thomas Moore, a Maryland farmer, in 1803. Improved cutters for harvesting ice and better icehouses, built aboveground, came shortly after. By the middle of the century, the icebox had become a household want, and farm icehouses were commonplace.

By 1890, Maine's potato farmers in Aroostook County were cutting and storing more than 3,000,000 tons of ice each winter. Most of this was shipped south. Other northern areas were in the business, but the

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and skulls are painted on walls and decorate pastries. In Pátzcuaro, the Dance of the Old Men (illustration, below) is held on this day.

Religion—a mixture of pagan and Christian—is the deep motivating force behind the Indians' demonstrations. From all points of the mountainous country they come to Mexico City to pay homage at the shrine of the Virgin of Guadalupe—the patron saint of Mexico. In out-of-the-way churches everywhere fiesta jollity follows worship.

Corn, the Mexican staff of life, is as fundamental as religion and often is fused with religious and fiesta occasions. Pre-conquest Indians placed corn on the altars of their gods, and when Christianity came they continued the practice. Indians still regard corn as a gift from above. Their lives are built around its growing and preparation.

Two and a half acres feed a family of five for a year. The ears are stored until needed, the women grinding an adequate amount each day. Before grinding, the ears are shelled and kernels soaked overnight in a lime-and-water solution. Next morning the softened kernels are washed, then ground into a paste called *masa*. This dough is patted into thin cakes which become tortillas when heated. It is said a Mexican girl is ready for marriage when she can make tortillas properly.

NOTE: Mexico is shown on the Society's map of Countries of the Caribbean.

For further information, see "'Pyramids' of the New World," in the *National Geographic Magazine* for January, 1948; "Down Mexico's Río Balsas," August, 1946*; "Wildlife of Tabasco and Veracruz," February, 1945*; "On the Cortés Trail," September, 1940*; "A Mexican Land of Lakes and Lacquers" (22 photographs), May, 1937*; and, in the GEOGRAPHIC SCHOOL BULLETINS, May 9, 1949, "Rain Means Life to Mexico's Farmers."

HELENE FISCHER

PÁTZCUARO'S "DANCE OF THE OLD MEN" RIDICULES OLD AGE

Behind wrinkled but smiling clay masks, young Tarascans bend backs, take halting steps, and hobble with canes in a lampoon of age's frailties. This fiesta is held annually on November 2, the Day of the Dead in Mexico, and All Souls' Day throughout the world. At midnight, the Indians place food on graves in a half-pagan ritual.

Bulletin No. 5, January 30, 1950

French Canoers Finish 2,675-Mile Paddle

FOUR French Rover Scouts in two canoes, following the path of Father Jacques Marquette, last month successfully finished a 2,675-mile paddle from Trois Rivières (Three Rivers), Quebec, to New Orleans, Louisiana. They were on the water six months, demonstrating the vigor of French youth and recalling the exploit, three centuries ago, of their countryman.

To understand the full scope of their feat, it is best to look at the records and trace Marquette's pioneer voyage, following the route on a large-scale map of Canada and the United States.

Saw Dionne Quintuplets

Father Marquette, a trained Jesuit missionary, departed the ancient home of his ancestors at Laon, France, at the age of 29. Sailing for Canada, he reached Quebec in mid-September, 1666. Within three weeks, he moved farther along the St. Lawrence to Trois Rivières. There, until April, 1668, he studied Algonquian, Montagnais, and other key languages of the Indian tribes.

From Trois Rivières, where today's French youths accepted from the Canadian Youth Organization two modern counterparts of the birchbark craft used by their predecessor, Marquette proceeded upstream to Montreal. There a party of Nez Percé Indians took him on the hard and dangerous trip up the Ottawa River, past the site of Callander (now famed as home of the Dionne quintuplets, whom the modern canoeists visited) to Lake Nipissing. Crossing this lake, they paddled along the French River to Georgian Bay on Lake Huron.

Moving westward along the Huron shore, Marquette reached Sault Ste. Marie. In this locale he launched his missionary career among the Algonquins, building a crude cabin at the foot of the rapids and starting work on a church.

His stay lasted only a year, however. Late in 1669 he was ordered to a new mission station southward at St. Ignace, where the Straits of Mackinac join Lakes Huron and Michigan. Here the young canoeists raced a group of Algonquins, descendants of those Marquette converted. The Indians lost the race.

Jolliet Became Marquette's Mississippi Companion

At St. Ignace, hearing Illinois Indians describe Missi-sepi, or Great Water, in their country to the southwest, Marquette determined to explore it. "This great river," he wrote, "can hardly empty in Virginia, and we rather believe that its mouth is in California . . . This discovery will give us a complete knowledge of the southern or western sea."

It was not until May 17, 1673, that Marquette, Louis Jolliet, and five Indians embarked in two canoes on the Straits of Mackinac, blazing the trail of exploration which the four French youths followed. Little is recorded of Jolliet, a fur trader, prior to the time he was selected as Marquette's companion in exploration.

Skirting Lake Michigan's northern shore to Green Bay, Marquette and

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peak for traffic in natural ice had arrived. The artificial brand was about to take its place.

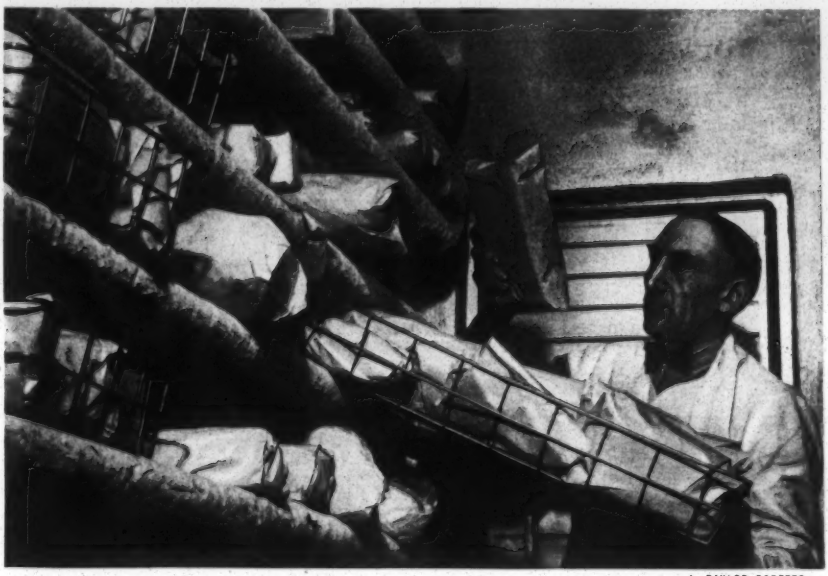
Although the pioneer ice-making machines of the 1850's couldn't produce at a cost as low as that of harvesting and transporting natural ice, by the 1880's ice plants had improved their methods and taken a firm hold. Fresh-made ice was available the year around, even in the small cities and towns.

Refrigerated freight cars appeared. Outsize iceboxes for preserving fruits for months after the harvest marked the start of the community cold-storage business (illustration, below). Federal projects such as the Tennessee Valley Authority and the Rural Electrification Administration introduce cold storage to remote regions even today.

Mechanical refrigeration now quick-freezes foods, producing ice crystals so tiny that they do not break food cells as slower freezing does. The process eliminates the last barrier to nation-wide distribution of perishable seafoods, fruits, and vegetables.

While food preservation is its biggest field by far, refrigeration has other important uses. Both ready-made ice and ice-making machinery serve in air-conditioning buildings, in prolonging the life of cut flowers, in storing fur coats and photographic materials. Hospitals use ice to cool oxygen and blood plasma, and as an anaesthetic.

NOTE: For additional information, see "Revolution in Eating," in the *National Geographic Magazine* for March, 1942.



J. BAYLOR ROBERTS

WHEN YOU'RE READY TO BROIL THEM, HE'LL HAND DOWN YOUR LAMB CHOPS FROM THE ICY SHELF

To this food locker plant in Staunton, Virginia, the farmer brings his home-raised fruits, vegetables, and meats to be frozen and packaged, and stored until called for. City-dwellers also take advantage of this deep freeze. They buy and store large quantities of garden truck in season, when it is best flavored and most reasonable. They save money by purchasing big cuts of meat and freezing them until needed. To today's housewife, a frozen-food locker is a luxury comparable to her great-grandmother's first icebox of a century ago.

his party ascended the Fox River, crossing Lake Winnebago en route. Following its winding course for seven days, they reached the Mississippi after one month's travel from the mission at St. Ignace. They were the first white men to view the river since its discovery by De Soto in 1541. When the French youths reached the Mississippi a violent squall swamped their canoes and they lost all equipment.

By July 17—two months and many perils after his start—Marquette, near the mouth of the Arkansas River, was fully satisfied that the Mississippi entered the Gulf of Mexico and not the Pacific Ocean. Turning about, he struggled upstream to the Illinois River. On the current expedition, the Rover Scouts continued downstream (illustration, below) to New Orleans, encountering other gales and troubles along the way.

Père Marquette's party ascended the Illinois and portaged to Lake Michigan, the first white men to tread Chicago's site. The group ended its long trip at the mission station on Green Bay in late September, 1673. Rigors of the voyage left Marquette with an illness which caused his death at 38, in 1675.

NOTE: The route of Marquette and of the Rover Scouts may be traced on the Society's maps of The United States of America, and Canada, Alaska & Greenland.

For additional information about the region traversed by Marquette and his modern followers, see "Quebec's Forests, Farms, and Frontiers," in the *National Geographic Magazine* for October, 1949; "Down Mark Twain's River on a Raft," April, 1948; and "Exploring Ottawa," November, 1947*.

J. BAYLOR ROBERTS

AT GILES CUTOFF, THE FRENCH SCOUTS NEARED THE END OF THEIR 2,675-MILE CANOE TRIP

Above Natchez, the artificial channel the towboat is entering now has become the Mississippi proper, while the old, wider channel to the left is an oxbow lake. This cutoff saved the canoeists 11 miles on their prodigious voyage duplicating Père Marquette's feat of three centuries ago.